DEC 05 2001

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3 December 2001

Ms. Charlotte Farina
Zuccaro, Willis, and Bent, P.C.
P.O. Box 97
Saint Johnsbury, Vermont 05819

Re: *Initial Site Investigation Report*
Former Roland Laperle Residence, 105 Summer Street, St. Johnsbury, Vermont

Dear Ms. Farina:

Enclosed for your review is a copy of the Initial Site Investigation Report prepared for the above referenced site.

Thank you for the opportunity to assist you with this project. Please contact me if you have any questions.

Sincerely,
Marin Environmental, Inc.

Darlene Autery
Hydrogeologist

DA/ A10055C02.doc
Enclosure

Cc: Mr. Chuck Schwer, VT DEC
Mr. Roland Laperle, former property owner

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EXECUTIVE SUMMARY

Marin Environmental, Inc. (Marin) has conducted an initial site investigation (ISI) at the LaPerle Residence located at 105 Summer Street in St. Johnsbury, Vermont. The ISI was conducted to evaluate subsurface fuel oil contamination discovered at the LaPerle Residence on 20 September 2000 during the removal of one No. 2 fuel oil underground storage tank (UST), located adjacent to the residence. The ISI included the completion of five soil borings, subsurface soil testing, and an evaluation of potential threats to nearby receptors. Marin's findings related to this work are summarized as follows:

- Subsurface fuel oil contamination was discovered at the LaPerle Residence on 20 September 2000 during the removal of one fuel oil underground storage tank (UST), located adjacent to the on-site building.

- PID readings collected using a photoionization (PID) from two foot intervals ranged from 0.0 to 16.6 pars per million (ppm).

- Analytical results from sampling performed on 2 November 2001 indicated that the shallow soils beneath the site have low levels of diesel range organic hydrocarbons; no lighter fraction petroleum related compounds were detected in the soils. Concentrations of total petroleum hydrocarbons (TPH) for diesel-range-organics were 103 milligrams per kilogram (mg/Kg) in the soil sample exhibiting the highest PID reading collected at SB-3 from a depth of eight to ten feet. PID readings decreased to 0.0 ppm in the base of the boring exhibiting the highest PID readings.

- The lateral and vertical extent of fuel oil contamination appears to have been defined and is localized to the arc of the former fuel oil UST with the highest concentration at a depth of eight to ten feet. The residual fuel oil contamination appears to be generally located below six feet.

- Groundwater was not encountered in any of the five soil borings that were advanced five feet below the former UST location.

- No VOCs were detected in the basement of the LaPerle residence using a PID.

- The site is supplied by town water and sewer.

- No observed sensitive receptors should be at risk from the localized residual soil impacted with fuel oil.

EXECUTIVE SUMMARY

- In general, sand overlying silt was encountered across the site to end-of-boring depths of approximately fourteen feet below ground surface (bgs).

- Ground water in the unconfined surficial aquifer at the site is assumed to flow southwest to the Sleepers River.

Based on all the data collected at the site to date, Marin recommends the following:

1. Due to the low concentration and small area (restricted to the area of the former fuel-oil UST) of residual subsurface fuel oil contamination present at the site and the low risk to human health and the environment this site should be considered for Sites Management Activities Complete (SMAC) designation. A notice to the Land Records should be made to document that residual concentrations of No. 2 fuel oil are present at the site.

1.0 INTRODUCTION

This report details the results of an Initial Site Investigation (ISI) performed by Marin Environmental, Inc. (Marin) at the LaPerle Residence, located at 105 Summer Street in St. Johnsbury, Vermont (Figures 1 and 2). This report has been prepared by Marin on behalf of Mr. Roland Laperle, former property owner. The ISI was conducted to fulfill requirements of the Vermont Department of Environmental Conservation (VT DEC) Waste Management Division (WMD) to evaluate No. 2 fuel oil soil contamination discovered during removal of a fuel oil UST on the property.

1.1 *Site Description and Physical Setting*

The site is located at 105 Summer Street in St. Johnsbury, Vermont (Figure 1). One single family, wood framed home with basement and adjacent garage is located on the property. The remainder of the property generally consists of a paved driveway, walkway and a lawn. The property is located within a residential neighborhood and is bound by Summer Street to the east, Highland Avenue to the south, and private residences to the west and north.

1.2 *Site History*

Subsurface fuel oil contamination was discovered at the Laperle Residence on 20 September 2000 during the removal of one out-of-service fuel oil UST, located immediately in front of the residence (see Figure 2). The environmental site assessment for the UST closure was conducted by Marin and summarized in a report dated and submitted to the VT DEC 25 October 2000. The UST was found to be in fair condition with some rust and pitting. There were two locations along the western end wall where small seam failures were noticed, and one location along the tank bottom where severe pitting had resulted in tank failure. Soils in the vicinity of the UST had a peak photoionization detector (PID) reading of 62.3 parts per million (ppm) with an average of

15.7 ppm. Background PID readings averaged 0.6 ppm. The highest reading was recorded adjacent to a weep at a seam failure on the north corner of the west end wall, approximately 4.0 feet below the ground surface (bgs). All soils excavated during the UST removal were backfilled into the excavation. The extent of soil contamination could not be defined, and therefore all soils from the excavation were backfilled, consistent with the WMD's guidelines for petroleum-contaminated soil. An additional 3 yd^3 of fill material was imported to the site to backfill the remainder of the UST cavity.

Ground water was not encountered during the excavation, which extended to a depth of nine feet.

1.3 *Objectives and Scope of Work*

The objectives of this ISI were to:

- evaluate the degree and extent of fuel oil contamination in soil;
- qualitatively assess the risks to environmental and public health via relevant sensitive receptors and potential contaminant migration pathways; and
- identify potentially appropriate monitoring and/or remedial actions based on the site conditions.

To accomplish these objectives, Marin has:

- supervised the completion of five soil borings (SB-1 to SB-5) within the former UST excavation at the site;
- screened subsurface soils from the soil borings for the possible presence of volatile organic compounds (VOCs) using a PID;
- collected and submitted subsurface soil samples from soil boring SB-3, located on the north east corner of the former UST excavation, for laboratory analysis of volatile petroleum compounds by EPA Method 8021B, and total petroleum hydrocarbons (TPH) by EPA Method 8015 diesel-range organics (DRO);

- identified sensitive receptors in the area, and assessed the risk posed by the contamination to these potential receptors; and

- prepared this summary report, which details the work performed, qualitatively assesses risks, provides conclusions, and offers recommendations for further action.

2.0 INVESTIGATIVE PROCEDURES AND RESULTS

2.1 *Soil Boring Installation*

On 2 November 2001, Marin supervised the completion of five soil borings (SB-1, SB-2, SB-3, SB-4, SB-5) to initially characterize contaminant and hydrogeologic conditions at the site (Figure 2). Soil boring (SB-1) was located at the approximate center of the tank pit excavation. Soil boring SB-2 through SB-5 were advanced on the corners of the UST excavation.

In general, sand backfill was encountered in each of the borings from beneath the topsoil to approximately five feet below ground surface (bgs). Native sands were encountered beneath the backfill, grading to silt, which was encountered at nine feet bgs and extended to the base of each boring. All borings were terminated in silt at 14 feet bgs, approximately five feet beneath the base of the UST excavation. Groundwater was not encountered in any of the borings.

The soil borings were advanced by M&W Soil Engineering, of Charlestown, New Hampshire using the hollow-stem-auger (HSA) drilling method. Soil samples were collected at two-foot intervals from each boring using a standard split-spoon sampler. The samples obtained were screened for the possible presence of VOCs with a PID, and logged by a Marin Environmental Scientist. All downhole drilling and sampling equipment was decontaminated during use, as appropriate. Soil-boring logs are included in Appendix A.

2.2 *Ground Water*

Groundwater was not encountered in any of the soil borings advanced on 2 November 2001, which extended to 14 feet bgs or during the tank pull on 20 September 2000. Ground water in the unconfined surficial aquifer at the site is assumed to flow to the southwest towards the Sleepers River.

2.3 *Soil-Screening Results*

The extent of fuel oil contamination appears to be defined and is limited in extent and magnitude. PID readings of soil samples collected from soil borings SB-1 through SB-5 ranged from 0.0 ppm to 16.6 ppm. The highest PID reading 16.6 ppm was recorded on the sample collected from eight to ten feet bgs in SB-3. PID readings are summarized in Table 1 below, and on the soil boring logs located in Appendix A.

Table 1. PID Soil Screening Results

Depth	SB-1	SB-2	SB-3	SB-4	SB-5
0-2	**0.4**	0.0	0.0	0.0	0.0
2-4	**1.4**	0.0	0.0	0.0	0.0
4-6	**1.4**	0.0	0.0	0.0	**1.9**
6-8	**1.4**	0.0	**3.3**	0.0	**2.9**
8-10	**1.7**	0.0	**16.6**	0.0	**3.2**
10-12	**1.8**	0.0	**0.7**	0.0	**2.6**
12-14	**1.9**	0.0	0.0	0.0	0.0

Results given in parts per million (ppm)

Discrete intervals in each soil boring were descriptively logged and screened for the possible presence of VOCs with a Photovac Model 2020 PID equipped with a 10.6 eV lamp. The PID was calibrated on site prior to screening with 100 ppm isobutylene span gas, referenced to benzene. Soil samples were placed into a Ziploc bag, which was sealed

and agitated. The PID probe was inserted into the bag headspace and the highest reading was recorded.

2.4 *Soil Sampling and Analysis*

Analytical results from sampling performed on 2 November 2001 indicated that the shallow soils beneath the site have low level of diesel range organic hydrocarbons; no lighter fraction petroleum related compounds were detected in the soils. Naphthalene was detected at 568 microgram per kilogram (µg/kg), 1,2,4- and 1,3,5- Trimethylebenzene were detected at 376 µg/kg and 122 µg/kg, respectively, and xylene was detected at 325 µg/kg. No other petroleum related compounds were detected. The concentration of TPH for diesel range organics was 103 milligram per kilogram (mg/Kg). The Vermont Department of Environmental Conservation (VTDEC) does not have written guidance on soil standards for fuel oil contaminated soils, but 100 mg/Kg is a common action level that has been used for residential properties.

The soil sample was collected from the soil sample exhibiting the highest PID reading (SB-3). Photoionization readings ranged from 0.0 ppm to 16.6 ppm. PID readings decreased to less than 0.0 ppm in the sample collected from the base of the same boring at 12-14 feet.

All samples were transported under chain-of-custody in an ice-filled cooler to Endyne, Inc. of Williston, Vermont. The samples were analyzed for the possible presence of volatile petroleum compounds by EPA Method 8021B and TPH-DRO by EPA Method 8015. Laboratory report forms are included in Appendix B.

3.0 SENSITIVE RECEPTOR SURVEY AND RISK ASSESSMENT

Marin conducted a survey to identify sensitive receptors in the vicinity of the site that could potentially be impacted by soil contamination associated with the former UST. The site and surrounding area are supplied by town water and sewer. The nearest surface water body is approximately 1000 feet west of the site. No VOCs were detected in the on-site basement adjacent to the former UST excavation screened using a PID during the UST removal in September 2000. PID readings decreased to less than one ppm in samples collected from the base of all borings except SB-1 which had low PID readings ranging from 0.0 to 1.9 ppm, throughout the boring. Based on the limited degree and extent of contamination present at the site, there appears to be a low threat to receptors.

4.0 CONCLUSIONS

Based on the results of the site investigation described above, Marin concludes the following:

- Subsurface fuel oil contamination was discovered at the LaPerle Residence on 20 September 2000 during the removal of one fuel oil underground storage tank (UST), located adjacent to the on-site building.

- PID readings collected using a photoionization (PID) from two-foot intervals ranged from 0.0 to 16.6 ppm.

- Analytical results from sampling performed on 2 November 2001 indicated that the shallow soils beneath the site have low levels of diesel range organic hydrocarbons; no lighter fraction petroleum related compounds were detected in the soils. Concentrations of total petroleum hydrocarbons (TPH) for diesel-range-organics were 103 milligrams per kilogram (mg/Kg) in the soil sample exhibiting the highest PID reading collected at SB-3 from a depth of eight to ten. PID readings decreased to 0.0 ppm in the base of the boring exhibiting the highest PID readings.

- The lateral and vertical extent of fuel oil contamination appears to have been defined and is localized to the area of the former fuel oil UST with the highest concentration at a depth of eight to ten feet. The residual fuel oil contamination appears to be located below six feet.

- Groundwater was not encountered in any of the five soil borings that were advanced five feet below the former UST location.

- No VOCs were detected in the basement of the LaPerle residence using a PID.

- The site is supplied by town water and sewer.

- No observed sensitive receptors should be at risk from the localized residual soil impacted with fuel oil.

- In general, sand overlying silt was encountered across the site to end-of-boring depths of approximately fourteen feet below ground surface (bgs).

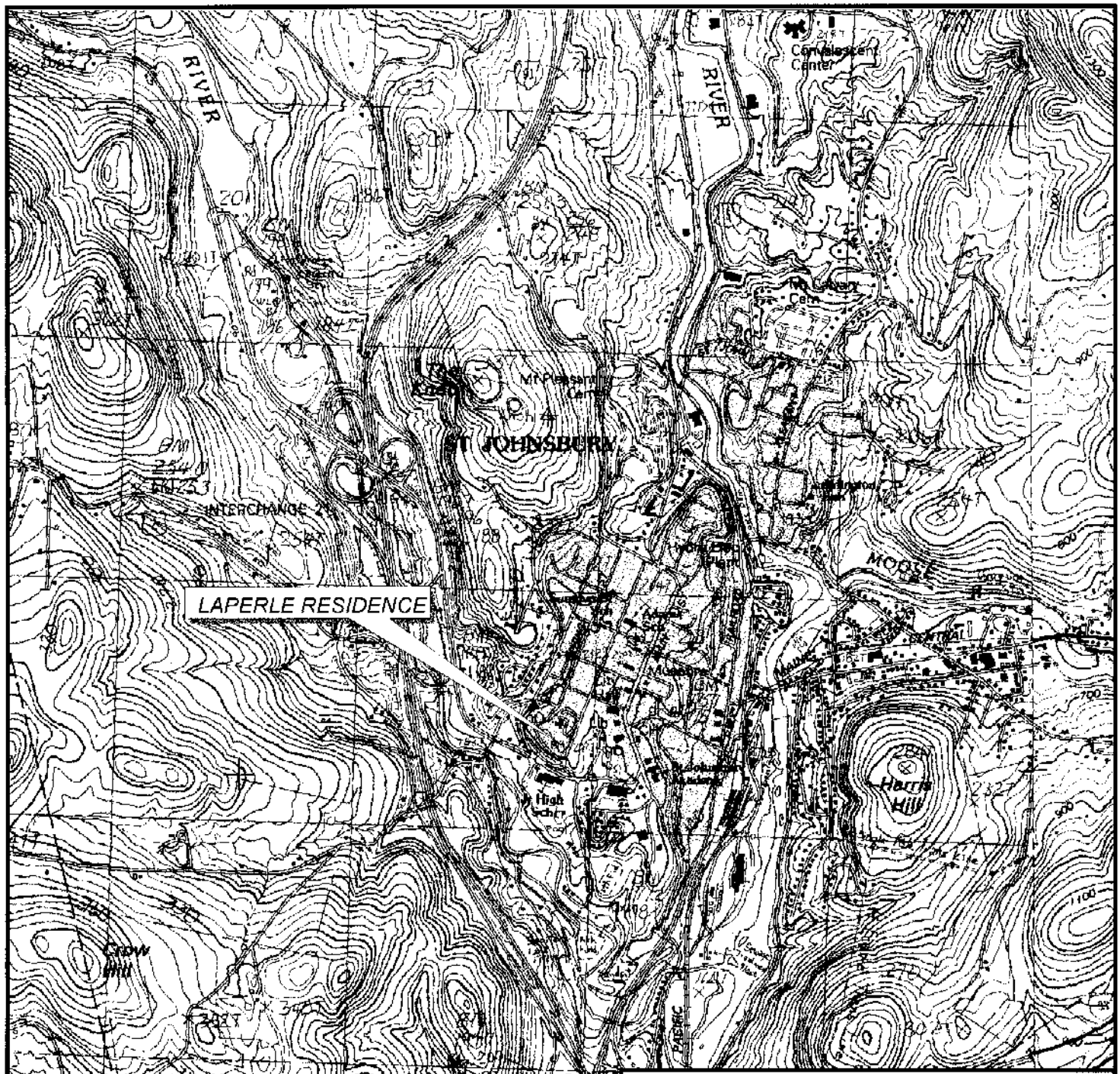
- Ground water in the unconfined surficial aquifer at the site is assumed to flow southwest to the Sleepers River.

5.0 RECOMMENDATIONS

On the basis of the results of this investigation and the conclusions stated above, Marin recommends the following:

1. Due to the low concentration and small area (restricted to the area of the former fuel-oil UST) of residual subsurface fuel oil contamination present at the site and the low risk to human health and the environment this site should be considered for Sites Management Activities Complete (SMAC) designation. A notice to the Land Records should be made to document that residual concentrations of No. 2 fuel oil are present at the site.

FIGURES



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TITLE: FIGURE 1. SITE LOCATION MAP

Source: USGS Topographic Map
St. Johnsbury Quadrangle (last revised: 1983)

SITE: Laperle Residence, 105 Summer St.
St. Johnsbury, Vermont
Site Lat/Lon NAD83: 44.4177, -72.0242

QUADRANGLE LOCATION

N

DRAWN BY: MHF	DATE: 10/23/00	SCALE: 1in = 2000ft
APPROVED BY: JB	FILE: 86SLOC.PLT	

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73 MILLET STREET — RICHMOND, VT 05477 — 1.800.520.6065

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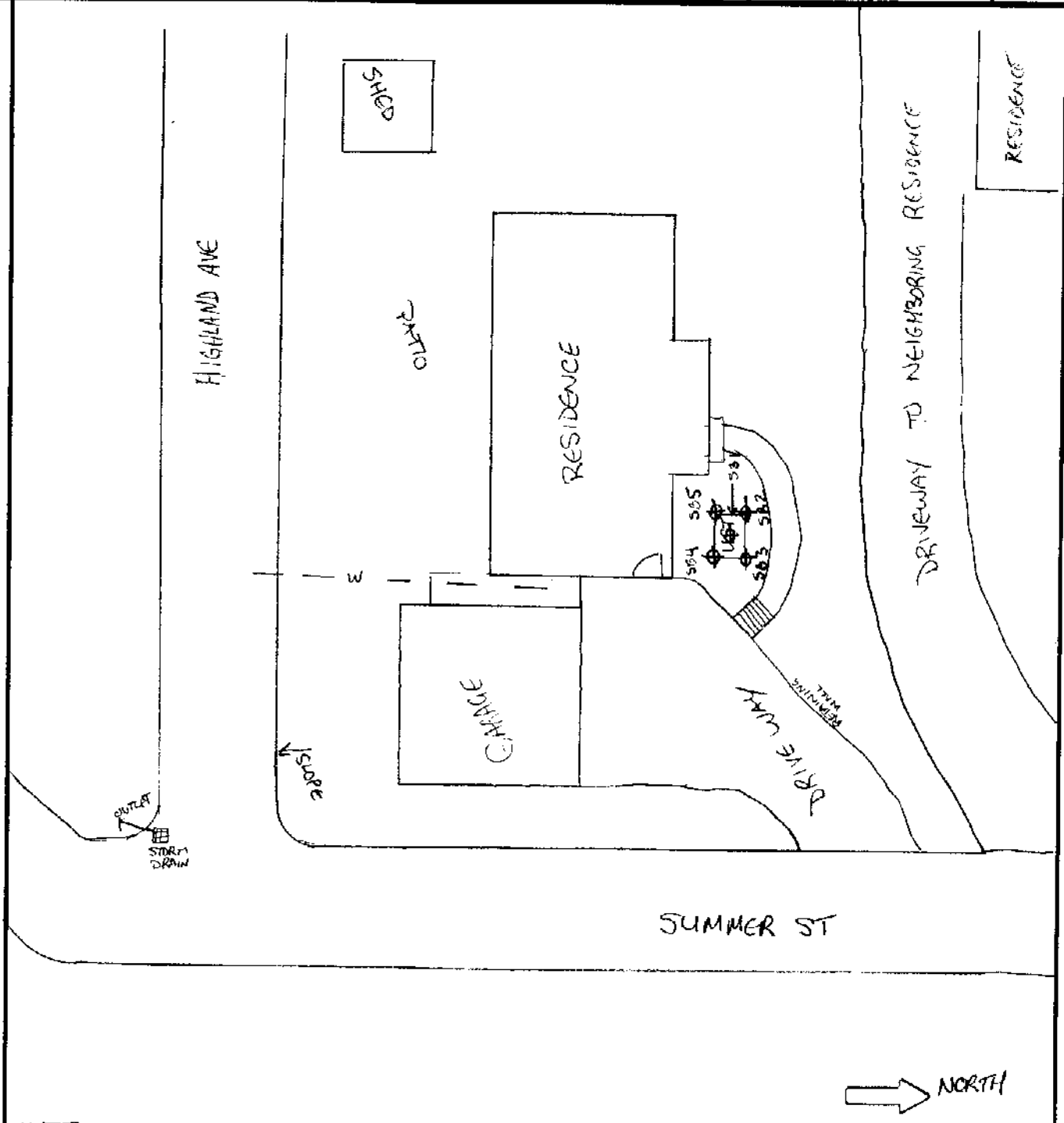
SUBJECT: SITE SKETCH	DATE	PREPARED BY	CHECKED BY	DATE	PROJECT NO.
FIGURE 2: 105 SUMMER ST. ST. JOHNSBURY VT	10/23/00	JB	JH	10/23/00	VTA00086



NOTES:

1. SITE SKETCH GENERATED FROM DATA COLLECTED BY MARIN ON 10/20/00.
2. SITE BUILDING AND UST LOCATION TO SCALE, OTHER FEATURE LOCATIONS ARE APPROXIMATE.

APPENDIX A

BORING LOGS /MONITORING WELL CONSTRUCTION DIAGRAMS

SITE NAME:	LaPerle Residence	BORING NO:	SB-1
LOCATION:	St. Johnsbury	TOTAL DEPTH:	14'
JOB NO.	VTA1-0055	DEPTH TO WATER:	> 14'
DATE:	11/2/01		
DRILLING METHOD	4 1/4" I Hollow Stem Auguer	FIELD SUPERVISOR:	Trish Coppolino
BORING DIAMETER	~10 in.	CONTRACTOR:	M&W Soils
		DRILLERS:	

XSB4 XSB-5

XSB-1

XSB-3 XSB-2

Boring/Well Location

Depth (ft)	Sample No.	BLOW COUNTS PER 6" 0-6	6-12	12-18	18-24	Rec. (inch.)	SAMPLE DESCRIPTION	STRATA	WELL DETAIL	PID (ppm)
0-2	S-1	2	2				Top 9" Topsoil. Next 8" lt. Brn, F. SAND.	topsoil	NO MONITORING WELL INSTALLED	0.4
				2	3	17/24		F. SAND		
2-4	S-2	2	2				Same as above.			1.4
				2	2	12/24				
4-6	S-3	2	2				Top 3" same as above. Next 5.5" Grn/Gry, F. SAND	Silty SAND		1.4
				2	1	8.5/24	and Silt.			
6-8	S-4	1	2				Lt. brn., F. SAND.	F. SAND		1.4
				2	3	9/24				
8-10	S-5	3	6				Top 5" same as above. Next 3" rust, F. SAND. Next			1.7
				8	7	16/24	8" grn./brn., SILT. No petroleum odors or stains.	SILT		
10-12	S-6	4	4				Grn./brn. , SILT.			1.8
				5	6	17/24				
12-14	S-7	4	6				Same as above.			1.9
				6	5	20/24				
							B.OB. @ 14'. No refusal encountered. No monitoring well installed.			

Notes:

1. Soils screened using a Photovac 2020 photolonization detector (PID) equipped with a 10.6eV lamp, calibrated to a benzene reference. Units are expressed in parts per million (ppm).

		BLOW COUNT		MATERIALS USED	SIZE/TYPE	QUANTITY
		0 - 4	VERY LOSE	WELL SCREEN		
AND	33-50%	4 - 10	LOOSE	SLOT SIZE		
SOME	20-33%	10 - 30	MEDIUM	RISER		
LITTLE	10-20%	30 - 50	DENSE	GRADED SAND		
TRACE	0-10%	> 50	VERY DENSE	BENTONITE PELLETS		
				BENTONITE GROUT		

SITE NAME:	LaPerle Residence	BORING NO:	SB-2
LOCATION:	St. Johnsbury	TOTAL DEPTH:	14'
JOB NO.	VTA1-0055	DEPTH TO WATER:	>14'
DATE:	11/2/2001		
DRILLING METHOD	4 1/4" I Hollow Stem Auguer	FIELD SUPERVISOR:	Trish Coppolino
BORING DIAMETER	~10 in.	CONTRACTOR:	M&W Soils

XSB4 XSB-5 XSB-1 XSB-3 XSB-2

Boring/Well Location

Depth (ft)	Sample No.	BLOW COUNTS PER 6" 0-6	6-12	12-18	18-24	Rec. (inch.)	SAMPLE DESCRIPTION	STRATA	WELL DETAIL	PID (ppm)
0-2	S-1	2	2			12/24	Top 6" topsoil. Next 6" lt. brn., F. SAND.	topsoil	NO MONITORING WELL INSTALLED	0.0
				2	1			F. SAND		
2-4	S-2	1	2			11/24	Same as above, grading to a drk. brn.			0.0
				3	2					
4-6	S-3	2	4			15/24	Lt. brn., F. SAND.			0.0
				3	3					
6-8	S-4	3	4			12/24	Top 8" same as above; overlying,12" SILT.			0.0
				5	5			SILT		
8-10	S-5	5	6			16/24	SILT			0.0
				5	6					
10-12	S-6	4	5			21/24	Same as above.			0.0
				4	4					
12-14	S-7	3	4			16/24	Same as above.			0.0
				4	3					
							B.OB. @ 14'. No refusal encountered. No monitoring well installed.			

Notes:

1. Soils screened using a Photovac 2020 photoionization detector (PID) equipped with a 10.6eV lamp, calibrated to a benzene reference. Units are expressed in parts per million (ppm).

		BLOW COUNT		MATERIALS USED	SIZE/TYPE	QUANTITY
		0 - 4	VERY LOSE	WELL SCREEN		
AND	33-50%	4 - 10	LOOSE	SLOT SIZE		
SOME	20-33%	10 - 30	MEDIUM	RISER		
LITTLE	10-20%	30 - 50	DENSE	GRADED SAND		
TRACE	0-10%	> 50	VERY DENSE	BENTONITE PELLETS		
				BENTONITE GROUT		

SITE NAME:	LaPerle Residence	BORING NO:	SB-3
LOCATION:	St. Johnsbury	TOTAL DEPTH:	14'
JOB NO.	VTA1-0055	DEPTH TO WATER:	>14'
DATE:	11/2/2001		
DRILLING METHOD	4 1/4" ID Hollow Stem Auguer	FIELD SUPERVISOR:	Trish Coppolino
BORING DIAMETER	~10 in.	CONTRACTOR:	M&W Soils
		DRILLERS:	

Boring/Well Location

XSB4 XSB-5

XSB-1

XSB-3 XSB-2

Depth (ft)	Sample No.	BLOW COUNTS PER 6" 0-6	6-12	12-18	18-24	Rec. (inch.)	SAMPLE DESCRIPTION	STRATA	WELL DETAIL	PID (ppm)
0-2	S-1	2	3				Topsoil.	topsoil	NO MONITORING WELL INSTALLED	0.0
				2	2	11/24				
2-4	S-2	2	3				Brn., F. SAND.	F. SAND		0.0
				3	3	10/24				
4-6	S-3	3	4				Same as above.			0.0
				4	3	13/24				
6-8	S-4	4	5				Lt. brn., F.SAND.			3.3
				4	4	18/24				
8-10	S-5	5	6				Top 3" same as above. Next 7" lt. brn., VF	V.F. SAND		16.6
				5	6	18/24	SAND. Next 8" SILT.	SILT		
10-12	S-6	3	4				SILT.			0.7
				5	4	23/24				
12-14	S-7	2	3				Same as above.			0.0
				3	4	22/24				
							B.O.B. @ 14'. No refusal encountered. No monitoring well installed.			

Notes:

1. Soils screened using a Photovac 2020 photoionization detector (PID) equipped with a 10.6eV lamp, calibrated to a benzene reference. Units are expressed in parts per million (ppm).

		BLOW COUNT		MATERIALS USED	SIZE/TYPE	QUANTITY
		0 - 4	VERY LOSE	WELL SCREEN		
AND	33-50%	4 - 10	LOOSE	SLOT SIZE		
SOME	20-33%	10 - 30	MEDIUM	RISER		
LITTLE	10-20%	30 - 50	DENSE	GRADED SAND		
TRACE	0-10%	> 50	VERY DENSE	BENTONITE PELLETS		
				BENTONITE GROUT		

SITE NAME:	LaPerle Residence	BORING NO:	SB-4
LOCATION:	St. Johnsbury	TOTAL DEPTH:	14'
JOB NO.	VTA1-0055	DEPTH TO WATER:	>14'
DATE:	11/2/2001		
DRILLING METHOD	4 1/4" I.D. Hollow Stem Auguer	FIELD SUPERVISOR:	Trish Coppolino
BORING DIAMETER	~10 in.	CONTRACTOR:	M&W Soils
		DRILLERS:	

XSB4 XSB-5 XSB-1 XSB-3 XSB-2

Boring/Well Location

Depth (ft)	Sample No.	BLOW COUNTS PER 6" 0-6	6-12	12-18	18-24	Rec. (inch.)	SAMPLE DESCRIPTION	STRATA	WELL DETAIL	PID (ppm)
0-2	S-1	1	1				Topsoil.	topsoil	NO MONITORING WELL INSTALLED	0.0
				2	1	7/24				
2-4	S-2	1	1				lt. brn., F. SAND.	F. SAND		0.0
				1	1	7/24				
4-6	S-3	1	2				Med.- drk. brwn, F. SAND and SILT.	Silty SAND		0.0
				1	2	12/24				
6-8	S-4	4	2				Lt. brn., F. SAND.	F. SAND		0.0
				3	4	16/24				
8-10	S-5	3	4				Same as above.			0.0
				4	4	11/24				
10-12	S-6	4	5				lt. brn., SILT.	SILT		0.0
				4	5	16/24				
12-14	S-7	4	3				Same as above.			0.0
				4	4	22/24				
							B.OB. @ 14'. No refusal encountered. No monitoring well installed.			

Notes:

1. Soils screened using a Photovac 2020 photoionization detector (PID) equipped with a 10.6eV lamp, calibrated to a benzene reference. Units are expressed in parts per million (ppm).

		BLOW COUNT		MATERIALS USED	SIZE/TYPE	QUANTITY
		0 - 4	VERY LOSE	WELL SCREEN		
AND	33-50%	4 - 10	LOOSE	SLOT SIZE		
SOME	20-33%	10 - 30	MEDIUM	RISER		
LITTLE	10-20%	30 - 50	DENSE	GRADED SAND		
TRACE	0-10%	> 50	VERY DENSE	BENTONITE PELLETS		
				BENTONITE GROUT		

SITE NAME:	LaPerle Residence	BORING NO:	SB-5
LOCATION:	St. Johnsbury	TOTAL DEPTH:	14'
JOB NO.	VTA1-0055	DEPTH TO WATER:	> 14'
DATE:	11/2/2001		
DRILLING METHOD	4 1/4" II Hollow Stem Auguer	FIELD SUPERVISOR:	Trish Coppolino
BORING DIAMETER	~10 in.	CONTRACTOR:	M&W Soils

XSB4 XSB-5

XSB-1

XSB-3 XSB-2

Boring/Well Location

Depth (ft)	Sample No.	BLOW COUNTS PER 6" 0-6	6-12	12-18	18-24	Rec. (inch.)	SAMPLE DESCRIPTION	STRATA	WELL DETAIL	PID (ppm)
0-2	S-1	1	1				Top 4" topsoil. Next 3" brown SAND.	topsoil	NO MONITORING WELL INSTALLED	0.0
				1	1	7/24		SAND		
2-4	S-2	1	3				Brn., F. SAND			0.0
				1	1	9/24				
4-6	S-3	1	1				Same as above.			1.9
				1	2	7/24				
6-8	S-4	3	3				Same as above.			2.9
				2	3	15/24				
8-10	S-5	4	5				Top 16" same as above; overlying 6" SILT.			3.2
				4	4	22/24		SILT		
10-12	S-6	3	4				SILT.			2.6
				3	4	18/24				
12-14	S-7	4	4				Same as above.			0.0
				4	4	22/24				
							B.O.B. @ 14'. No refusal encountered. No monitoring well installed.			

Notes:

1. Soils screened using a Photovac 2020 photoionization detector (PID) equipped with a 10.6eV lamp, calibrated to a benzene reference. Units are expressed in parts per million (ppm).

		BLOW COUNT		MATERIALS USED	SIZE/TYPE	QUANTITY
		0 - 4	VERY LOSE	WELL SCREEN		
AND	33-50%	4 - 10	LOOSE	SLOT SIZE		
SOME	20-33%	10 - 30	MEDIUM	RISER		
LITTLE	10-20%	30 - 50	DENSE	GRADED SAND		
TRACE	0-10%	> 50	VERY DENSE	BENTONITE PELLETS		
				BENTONITE GROUT		

APPENDIX B

LABORATORY REPORT FORMS

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

Marin Environmental
73 Millet Street
Richmond, VT 05477
Attn: PO 1495

PROJECT: LaPerle
ORDER ID: 15185
RECEIVE DATE: November 6, 2001
REPORT DATE: November 20, 2001

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which include matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Marin Environmental
PROJECT: LaPerle
REPORT DATE: November 20, 2001

ORDER ID: 15185
DATE RECEIVED: November 6, 2001
SAMPLER: PC

Ref. Number: 184041 | Site: SB-3 | Date Sampled: November 2, 2001 | Time: 11:00 AM

Parameter	Result	Unit	Method	Analysis Date	Analyst
TPH 8015 DRO	103.	mg/kg	SW 8015B	11/15/01	128

46594

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

Special Reporting Instructions: ~~COC~~ PO# 1495

Project Name: Laperle	Reporting Address: Marin	Billing Address: Marin
Endyne Order ID: (Lab Use Only) 15185 Z -O -I -S	Company: Marin Contact Name/Phone #: Darlene	Sampler Name: PC Phone #:

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
184641	SB-3 (9-10)	Soil	X		11/2 1100		VOA		~~8021B, TPH~~ 8260, TPH	MeOH	
								as per DA 11.7.01 ag	DRO		

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
	11/6/01 1127		11.6.01 11:30		

New York State Project: Yes _____ No _____

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRA8 Metals
4	Nitrite N	9	BOD	14	Turbidity	19	8021B	24	8260/8260B	29	
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	
31	Metals (As is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Tl, V, Zn										
32	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)					33					
34	Other										

LAB USE ONLY
Delivery: Client
Temp:
Comment:

(White, Yellow, Pink Copy - Laboratory / Goldenrod Copy - Client)

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

Marin Environmental
73 Millet Street
Richmond, VT 05477
Attn: PO 1495

PROJECT: LaPerle
ORDER ID: 15185
RECEIVE DATE: November 6, 2001
REPORT DATE: November 20, 2001

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which include matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

SW 8260

CLIENT: Marin Environmental
PROJECT: LaPerle
SITE: SB-3
DATE RECEIVED: November 6, 2001
REPORT DATE: November 20, 2001
ANALYSIS DATE: November 15, 2001

ORDER ID: 15185
REFERENCE NUMBER: 184041
DATE SAMPLED: November 2, 2001
TIME SAMPLED: 11:00 AM
SAMPLER: PC
ANALYST: 725

Parameter	Result ug/kg, as received	Parameter	Result ug/kg, as received
Benzene	< 120.	1,1-Dichloropropene	< 120.
Bromobenzene	< 120.	cis-1,3-Dichloropropene	< 120.
Bromochloromethane	< 240.	trans-1,3-Dichloropropene	< 120.
Bromodichloromethane	< 120.	Ethylbenzene	< 120.
Bromoform	< 120.	Hexachlorobutadiene	< 600.
Bromomethane	< 600.	Isopropylbenzene	< 120.
n-Butylbenzene	< 120.	p-Isopropyltoluene	< 120.
sec-Butylbenzene	< 120.	Methylene Chloride	< 1,200.
tert-Butylbenzene	< 120.	MTBE	< 240.
Carbon Tetrachloride	< 120.	Naphthalene	568.
Chlorobenzene	< 120.	n-Propylbenzene	< 120.
Chloroethane	< 600.	Styrene	< 120.
Chloroform	< 120.	1,1,1,2-Tetrachloroethane	< 240.
Chloromethane	< 1,200.	1,1,2,2-Tetrachloroethane	< 240.
2-Chlorotoluene	< 120.	Tetrachloroethene	< 120.
4-Chlorotoluene	< 120.	Toluene	< 120.
Dibromochloromethane	< 120.	1,2,3-Trichlorobenzene	< 240.
1,2-Dibromo-3-Chloropropane	< 240.	1,2,4-Trichlorobenzene	< 240.
1,2-Dibromoethane	< 240.	1,1,1-Trichloroethane	< 120.
Dibromomethane	< 240.	1,1,2-Trichloroethane	< 120.
1,2-Dichlorobenzene	< 120.	Trichloroethene	< 120.
1,3-Dichlorobenzene	< 120.	Trichlorofluoromethane	< 240.
1,4-Dichlorobenzene	< 120.	1,2,3-Trichloropropane	< 240.
Dichlorodifluoromethane	< 1,200.	1,2,4-Trimethylbenzene	376.
1,1-Dichloroethane	< 120.	1,3,5-Trimethylbenzene	122.
1,2-Dichloroethane	< 120.	Vinyl Chloride	< 240.
1,1-Dichloroethene	< 120.	Xylenes, Total	325.
cis-1,2-Dichloroethene	< 120.	Surrogate 1	101.%
trans-1,2-Dichloroethene	< 120.	Surrogate 2	102.%
1,2-Dichloropropane	< 120.	Surrogate 3	101.%
1,3-Dichloropropane	< 120.	UIP's	> 10.
2,2-Dichloropropane	< 120.	Percent Solids	NA

46594

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

Special Reporting Instructions: ~~COC~~ PO# 1495

Project Name: LaPerle	Reporting Address: Marin	Billing Address: Marin
Endyne Order ID: (Lab Use Only) 15185	Company: Marin Contact Name/Phone #: Darlene	Sampler Name: PC Phone #:

Z -O
-I
-S

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
184041	SB-3 (9-10)	Soil	X		11/2 1100		VOA		~~8260, TPH~~ 8260, TPH	MeOH	
								as per DA 11.7.01 ag	DRO		

Relinquished by: Date/Time 11/6/01 1127

Received by: Date/Time 11.6.01 11:30

Received by: Date/Time

New York State Project: Yes _____ No _____

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRA8 Metals
4	Nitrite N	9	BOD	14	Turbidity	19	8021B	24	8260/8260B	29	
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	

31 Metals (As Is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Tl, V, Zn

32 TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides) 33

34 Other

LAB USE ONLY
Delivery: Client
Temp:
Comment:

(White, Yellow, Pink Copy - Laboratory / Goldenrod Copy - Client)